PREVENTION OF SMALLPOX BY USE OF VACCINE VIRUS

Some Interesting Truths Concerning the Much-Dreaded Disease.

ONCE WORLD'S GREATEST PLAGUE

Malady Is Now Declared Absolutely Preventable.

RELATION TO COWPOX

Discovery That Dairymen Who Contracted Cowpox From Their Cattle Were Immune From More Malignant Disease Led to Use of Vaccine—Disorder Now Conquered.

One of the great aims of medicine is the prevention of disease. The immediate duty of a physician is to alleviate human suffering; his most striking contribution to the continued welfare of the race is the teaching of prevention of disease.

Many of the preventable diseases are preventable only by the exercise of dietary and sanitary precautions of a more or less precise character, as, for example, typhoid fever, the prevention of which requires the most rigid supervision of food, drink, and excreta. Pneumonia of the acute and ordinary kind need never occur could one always live in an even temperature.

Some of the necessary precautions for the avoidance of disease are at times unobtainable, and too often of a nature which involves more forethought than the average person in health will give.

But there is one disease, malignant in many aspects, which traversed the entire world, which frequently changed the history of nations and sacrificed millions of lives, which is entirely, absolutely preventable without other effort or precaution upon the part of any one than a temporary inconvenience a few times during life. That disease is smallpox, which is now prevalent in many sections of the country.

When Smallpox Was Very Common.

This disease was once one of the great scourges of the world. Up to the beginning of the ninth century it was far more common than bronchitis is today. Scarcely anyone escaped an attack of it, and the death roll from it was greater than from any other one cause in history.

In 1737, during an epidemic, 70 per cent of the population of Greenland died of smallpox. Between 1783 and 1792 36 per cent of all deaths in Glasgow were from this cause. In Sweden, for twenty-eight years before 1800, there were 1,000 deaths yearly per million of population. To get an idea of what this means, suppose that the United States were to have 75,000 persons die in one year from one disease. This tremendous total represents what was in proportion occurring annually in Sweden. Throughout Europe, in the asylums for the blind, two-thirds of all cases of blindness were due to smallpox. Such was the rarity of an adult without the marks of the disease upon his face that the police descriptions in the large cities invariably mentioned it as a distinguishing feature, when it existed, that the person wanted was not pockmarked. This fact made it easier to apprehend the one wanted than any other peculiarity of personal description.

Smallpox and Cowpox.

This virulent disease, which was the constant dread of all and the destroyer of childhood, causing one-third of all deaths in children under the age of ten years, has been so completely banished from civilized countries that there are today thousands of physicians in active practice for years who never have seen a case of smallpox.

The prevention of the disease among those who have presented themselves voluntarily or have been forced to do so by legislation, is due to the discovery of the real relationship between cowpox and smallpox and the ease of preventing the latter, hideous and malignant, through the former, benign and simple.

Dr. Edward Jenner, of England, observed that in smallpox epidemics those employed in dairies were unscathed. Tracing this, he found it to be due to the fact that they had suffered from a brief illness commonly called cowpox. The dairymen contracted this disease from the cattle and thereafter escaped smallpox.

First Use of Vaccine.

Dr. Jenner took some of the lymph appearing in vesicles upon a cow suffering from the disease, and on May 14, 1796, inoculated a child with it. This child was subsequently exposed to smallpox again and again without contracting the disease. Cowpox was medically known as vaccinia, and the method of treating one with it was called vaccination. What vaccination did was to give the patient a mild disease which left in the body some substance which could destroy the smallpox poison when the latter was brought to the system.

Jenner published his discoveries. In 1809 Dr. Waterhouse, at Boston, performed the first vaccination in America. The value of the discovery impressed itself upon the minds of the statesmen and scientists of the day. Thomas Jefferson, while President, greatly aided in causing vaccination to be done throughout the country, and especially in the Southern States.

Smallpox in War.

Since the spread of vaccination as a preventive for smallpox every country which has thoroughly put vaccination into practice has materially benefited. The one country which realized and made full use of the preventive value of vaccination more than any other is Germany. For many years vaccination was not compulsory, but was nevertheless fairly thorough.

Just across the border, in France, Switzerland, Austria, and Hungary, there was medical belief in vaccination, but no attempt at general enforcement of this preventive measure. One of the results of this difference between French and German methods was shown in the Franco-Prussian war, when there were but 459 deaths from smallpox among the German troops and 23,400 from the same cause among the French. Smallpox was more effective than Prussian bullets.

Since 1874 the law in Germany relative to vaccination has been that it should be done in infancy, again at school age, and, if the child be a male, again when he entered the army. Every male German of physical qualifications must serve in the army. Before the enactment of the law there were 307 deaths per million of population from smallpox, a remarkably small number. Since that law became effective there have been seven deaths per million.

In the German army, as in all disciplined bodies, the vaccination is certain and effective. There has been no death from smallpox in the German army since 1874. On the other hand, among the neighboring countries where vaccination was optional, the death rate has been vastly greater; there were, for example, in the year 1886, forty-eight times as many deaths from smallpox in Belgium as in Germany; fifty-four times as many in Switzerland; eighty-one times as many in Austria, and 607 times as many in Hungary.

The Disease Easily Prevented.

These figures tell their own story. Smallpox is the most preventable disease in the category of human ills. Successful vaccination protects one from smallpox for several years. The protective influence wears out in time, varying from four years to twenty, but may be renewed by revaccination. The protective influence of every other acute contagious disease wears out in time as well as that of vaccination.

Measles may be contracted the second time, although ordinarily one attack fortifies the system for life against a second. Scarlet fever occasionally occurs more than once in the same person. Diphtheria may occur a number of times, the protective influence in this disease lasting but a few weeks. Smallpox occurs the second time in many instances. Dr. Marson, of London, reported forty-seven attacks in 6,000 cases of smallpox. The same proportion has been frequently observed.

It is not safe to rely upon a preceding attack of smallpox as an assurance that a second may not occur. Never should one rely upon the vaccination done in infancy to guard against smallpox during life. Vaccination in infancy, again at school age, and again in young manhood, is the safest rule to follow, with the further precaution of vaccination during any epidemic.

The Present Mild Epidemic.

There is now prevailing in this country a mild epidemic of smallpox, which has came from our island possessions, where, up to the entrance of the authority of the United States, smallpox was continually present among the natives. The unusually intimate intercourse which has been maintained between this country and the Philippines during the past three years, with the frequent exchange of letters, curios, and articles of commerce, has resulted in the disease securing a foothold here.

Owing to the practical disappearance of smallpox from the observed diseases until the present epidemic, many persons have been unvaccinated, thinking that occasion for vaccination does not exist.

Vaccination should be as necessary in childhood as one's name.

The unvaccinated persons are the real danger to the community.

In an English epidemic some years ago the statistics showed that out of every 1,000 of population of those unvaccinated ninety-four took smallpox, and of these ninety-four there were fifty-one deaths; of those vaccinated once, nineteen became ill and one died; of those vaccinated more than once but five became sick and none died.

When the United States took Porto Rico smallpox was the most common disease on the islands. Under our administration 800,000 persons were vaccinated on that island, and in November, 1901, smallpox was unknown on the island.

The vaccine used today is no longer taken from scabs or from sore arms as formerly. A young, sound heifer is tested by a veterinarian repeatedly until soundness is secured, and so recorded. She is then cleaned carefully and vaccinated. She is kept clean, watched and fed precisely as a human being under treatment in a hospital. When the vesicles are ripe the heifer is cleaned again and the lymph removed under the same precautions as obtain in a hospital for surgical work. This lymph is mixed with glycerine and sterilized.

It is tested twice on subjects whose state is recorded carefully before being sold or used for public distribution. When all these precautions are observed and the lymph used while fresh it represents the best human skill employed for the protection from a hideous disease of the highest earthly creation, man, one of whose chief aims on earth is to serve his fellow man.

THE MAN IN THE TOWER.

How Citizens of Indianapolis Are Warned of Fire.

If anyone that has a telephone in his house hears it ring, and on taking down the receiver hears a voice at the other end of the line say "This is the man in the courthouse tower," he shouldn't do as a young woman did some time ago when thus called—laughingly answer, "Is it?" and hang up the receiver.

The man in the courthouse tower is no impostor, and when he calls up by telephone it is well for one to listen to what he has to say, as he is trying to locate a suspicious looking smoke in one's neighborhood and wants one to make a closer investigation for him. It may be that upon looking one will find that it is one's own barn or shed that is burning. It seems that everyone in the city would know that there is a watchman in the courthouse tower looking out for fires, for he has been there many years, but evidently there are many persons ignorant of the fact.

The watch tower is one of the most novel features of the fire department, and it is doubtful if anywhere in the United States there is another city the size of Indianapolis which has such a station in connection with its fire-fighters. The idea of having a man placed above the city to look out for fires was carried out by ex-Chief Webster, who is responsible for a number of other valuable ideas which are used in the department at the present time. It was in the early part of his long years as chief that Mr. Webster conceived the idea that it would save the department much unnecessary work and loss of time if there were a watchman in a tower somewhere in the centre of the city, where it would be easy for him to see fires in all parts of town.

What gave rise to this thought of Chief Webster's was the fact that the department, in answering many alarms, had been going in the wrong direction. The reason for this was that the people, at night, in one part of the city, would see the reflection of the blaze of a burning house or stable in another part, and, supposing that it was not very far away—for the light from a fire always looks much closer than it really is—they would send in an alarm, in answering which the department would find that it had been going the wrong way, and then would have to turn about and go to the blaze.

All of this delay, of course, occasioned much loss of property. To remedy this Chief Webster thought of building a tower on the fire headquarters, but later he received permission from the county commissioners to put a man in the courthouse tower, and on May 15, 1883, the first watchman was stationed there on a four days' trial. The result was so satisfactory that when the four days had expired it was decided that "the man in the courthouse tower" should be a fixture, and from that time to this Indianapolis has never been without a watchman whose duty it is to look out for the most deadly enemy a city can have, and that is fire.—Indianapolis Journal.

GARDEN OF FREAKS YIELDS FINE FRUITS

An Exploring Trip Through the Productive Flats.

THE FARM ALONG THE POTOMAC

Wonderful Results of Agricultural Department Experiments Fully Described—What Happened to a Wearied Professor.

The Agricultural Department will soon publish a report giving a history of the experiments conducted last summer at its farm on the "flats," which should prove of more than ordinary interest. The "flats," so called, are located in the vicinity of the historic Long Bridge, and are composed of made ground, silt dredged from the bottom of the Potomac, a fertile, rich, untried, and virgin soil.

The experts of the department thought that excellent results might be obtained in experimental work because of the unparalleled richness of the ground, and an appropriation was obtained from Congress and the Government farm established.

Results of Experiments.

According to those who ought to know, the results achieved exceeded all expectations, not, however, in a line with the preconceived ideas of the expert agriculturists. The sowing of ordinary garden seeds resulted in the appearance of all sorts of freaks and monstrosities of the vegetable kingdom, and growths that almost rivaled the beanstalk that made "Jack" famous developed from the planting of shoots from ordinarily slow-growing and orderly vines.

The experts of the department who had the work in charge smile wearily when they are questioned regarding the wonders which grew and thrived last summer in the "Garden of Freaks," as the farm has come to be called, and say: "Wait until the report is made public." One of them, however, more confidential than the others, said the other day that he doubted whether the wonders which will be chronicled between the covers of a Government publication will be believed by those devoid of strong imaginations.

A Citizen's Personal Tour.

One reputable citizen of Washington has acquired a most undesirable reputation for drawing the long bow through his attempt to describe the things he saw during an afternoon's visit to the experiment station. He had heard of the freaks of the vegetable world which were on exhibition at the farm and determined to discover for himself the truth of the matter.

When he returned from his visit he was full of the subject. He used to be a farmer in a small way himself before he settled down in Washington and began to make money, and thought he knew something about farming. And so did his friends. But when he came back from the flats and said he had seen corn thirty feet high, with stalks as thick as a good-sized flagpole and as hard as iron, with ears three feet long and kernels as big as a quarter, he was very properly "rizzed" by his friends. This same man was telling a Times reporter about it the other day.

"I didn't believe the things I had heard," he said, "and went to see for myself. I was greeted at the office of the experiment station by a sad-faced agriculturist who told me that all the experts were at the Agricultural Department, it being pay day, and he offered to show me over the place.

"I accepted, and we were about to start when the tired-looking individual in jeans asked me if I liked watermelons. I told him I did, and he went back and got a knife, saying that the Government had several thousand melons on hand and that, as they were only cultivated for their seeds, and were not for sale, I could sample as many as I cared to.

Seeking the Watermelons.

"Then we started for the melon patch, passing many strange sights on the way; corn thirty feet high; squashes of immense size and shape; fantastic cabbages which grew straight up in the air for five or six feet and never 'headed'; hemp so straight and tall and thick that it looked like a great, moss-covered stone wall; peanuts the size of potatoes, with vines that looked like tangled underbrush; sugar beets two or three feet long and of huge diameter; cotton with bolls as big as your head, and a great many other things just as much out of the ordinary.

"At last we came to a big field where a lot of melons were lying about, ripening in the sun. But my guide had evidently forgotten that he had asked me if I liked melons and didn't stop, so I picked out a couple of likely looking big ones, about three feet long and a foot in diameter, and said, 'Look here, my friend, just cut these melons, will you? They look like good ones.' And I tapped the one nearest with my cane and tried to look wise.

"'Watermelons,' said the tired-looking man scornfully, 'watermelons! Them ain't watermelons. Them's cucumbers.' And I'll be blessed if they weren't, too, for I made him cut one open to satisfy myself.

The Real Melons at Last.

"After awhile we came to the real melon patch and I saw the difference. Honestly, I'd be ashamed to tell you how big the biggest were. There were lots as big as barrels, though, and some of them were freaks sure enough.

"And there were melons in that patch green outside and red inside, white outside and green inside; melons with normal looking exteriors, but pink, or yellow, or blue, or in fact every possible color within, and there were several varieties of foreign melons in which the meat had several different colors in the same fruit. But they were all ripe and all tasted good. I tried them all, and I knew, and I'd be willing to wager that my interior was a beautiful color scene when I left that remarkable farm.

A Wonderful Patch of Ground.

"Just as I was leaving," continued the man whose reputation for veracity has been questioned, "my guide stopped me, and, pointing across the fields, said, impressively:

"'You see that little patch of plowed ground over there? Well, when the professor first came down here to look after things he used to stay nights so as to be up early in the morning and work. One night it was so hot that he pitched a little shelter tent over there where I'm pointing, spread a rubber blanket on the ground, and went to sleep.

The Professor's Discovery.

"'When he woke up in the morning he found himself lying under the shade of a big tree. There wasn't any tree there when he lay down, and he thought he was sure enough going crazy when he looked up in the top of the tree and saw his shelter tent caught in the branches. Then, in a high state of excitement, he began to examine the leaves of the strange tree, and finally, after pinching himself, he realized what had happened.

"'You see he had been carrying around some of those seeds the Hindu magicians use to grow trees while you wait. Friends had sent them to him from India. One of them must have dropped out of his pocket when he lay down, and the soil on these flats is so rich that in one night it had grown up a pretty considerable distance and taken the professor's shelter tent with it.'

"I looked at the speaker for awhile," said the man who had visited the farm, "and then left the place, wondering if a sojourn in the Garden of Freaks tended to abnormally develop the imagination."

The reporter has been unable as yet to find the man who owned and slept under the shelter tent on the occasion described by the sad-faced agriculturist, but there are numerous papier mache models of some of the freak products of the farm on the flats, now on exhibition in the museum of the Agricultural Department.